

REMARKS

Claims 1-9 stand rejected under 35 U.S.C. §112, second paragraph, for allegedly being incomplete due to the omission of essential structural cooperative relationships of certain elements, such as between the pillar spacer and the alignment defect. Applicant respectfully traverses this rejection.

Applicant has amended independent Claims 1 and 9 to clarify the relationship between the pillar spacer and the other components. More specifically, Claim 1 now recites that the pillar spacer is “located between substrates” and Claim 9 previously stated that the pillar spacer is “formed on the light shielding film.” Thus, Applicant respectfully submits that the location of the pillar spacer is adequately defined in independent Claim 1 and 9.

Further, with regard to the relationship between the pillar spacer and the alignment defect, the alignment defect is not defined in independent Claim 9, so no relationship between these features is necessary. Accordingly, withdrawal of this §112, second paragraph, rejection of independent Claim 9 is respectfully requested.

With regard to the relationship between the pillar spacer and the alignment defect recited in independent Claim 1, this claim has been amended to clarify that the alignment defect is “created, because of the pillar spacer, across adjoining ones of the pixel regions when viewed in a direction perpendicular to the surface of one of the substrates.” One example of an embodiment defined by Claim 1 is shown in Applicant’s Figure 4, which shows a pillar spacer 18 that forms a plurality of alignment defect regions “a1,” “a2,” “a3,”

and “a4,” which are collectively referred to as alignment defect region “a.” The alignment defect region “a” is created because the pillar spacer 18 disrupts the rubbing process, which is performed in direction A, as represented by arrow “A.” Thus, in light of the amendment to Claim 1 and the comments made above, Applicant respectfully submits that the relationship between the pillar spacer and the alignment defect region is defined in Claim 1, and therefore, Applicant respectfully requests the withdrawal of this §112, second paragraph, rejection of independent Claim 1 and associated dependent Claims 2-8.

Claims 1-9 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by United States Patent No. 6,445,437 to Miyazaki et al. Applicant respectfully traverses this rejection.

Applicant respectfully submits that the Miyazaki et al. reference fails to disclose all of the features of the present invention. More specifically, the Miyazaki et al. reference fails to disclose a liquid crystal display that includes, *inter alia*, a light-shielding film formed like a grid, wherein the grid defines a frame made of light shielding material that divides the light shielding film into a plurality of cells that lack light shielding material, with pixel regions being defined by the light shielding film, where pixel regions are within the cells, and “a pillar spacer provided such that a plurality of regions having an alignment defect . . . are formed across adjoining ones of the pixel regions,” as defined in independent Claim 1. Nor does the Miyazaki et al. reference disclose a liquid crystal that includes, *inter alia*, the light shielding film and the pixel regions similar to those of Claim 1, as well as “a pillar

spacer which is formed on the light shielding film and provided such that it protrudes from the light shielding film into adjoining ones of the pixel regions,” as defined in independent Claim 9.

One example of an embodiment defined by Claim 1 is shown in Applicant’s Figure 4, which shows a light shielding film 10 that is formed like a grid that defines a frame made of light shielding material that divides the light shielding film 10 into a plurality of cells that lack light shielding material. There are a plurality of pixel regions (G, B, R) defined by the light shielding film, and these pixel regions are within the cells. Thus, the pixel regions (G, B, R) are defined in Claim 1 as regions lacking light shielding material. The liquid crystal display of Claim 1 also includes a pillar spacer 18 that forms a plurality of alignment defect regions “a1,” “a2,” “a3,” and “a4.” As can be seen in Figure 4, the alignment defect regions “a1” through “a4” are formed across four neighboring pixel regions (region a1 is in a first pixel region (upper pixel region B), region a2 is in a second pixel region (lower pixel region B), region a3 is in a third pixel region (upper pixel region G) and region a4 is in a fourth pixel region (lower pixel region G)). It should be noted that although the Figure 4 embodiment includes *four* alignment defect regions formed across *four* neighboring pixel regions, Claim 1 merely states that the pillar spacer is provided such that a “plurality of regions” having an alignment defect are “formed across adjoining ones of the pixel regions.” Accordingly, Claim 1 is satisfied if the alignment defect is formed of two or more regions across two or more adjoining pixel regions.

In contrast, the devices of the Miyazaki et al. reference lack the claimed “pillar spacer provided such that a plurality of regions having an alignment defect . . . are formed across adjoining ones of the pixel regions,” as defined in independent Claim 1. For example, Figure 20 of the Miyazaki et al. reference shows pillar spacer 33 that forms a region having an alignment defect at area 44. As can be seen in Figure 20 of the Miyazaki et al. reference, area 44 is a single region formed in a TFT shielding area 36, and is not across any “pixel regions,” where the “pixel regions” are within “cells that lack light shielding material,” as defined in independent Claim 1. Further, Applicant submits that the light shielding layer 36 that forms the grid of Figure 20 cannot be considered as part of claimed “pixel regions” because amended Claim 1 recites that the pixel regions are formed “within the cells” where those cells are defined as follows: “a light-shielding film formed like a grid . . . wherein the grid defines a frame made of light shielding material that divides the light shielding film into a plurality of cells *that lack light shielding material*” (emphasis added).

The Figure 23 embodiment of Miyazaki et al. also fails to show the claimed “pillar spacer provided such that a plurality of regions having an alignment defect . . . are formed across adjoining ones of the pixel regions,” as defined in independent Claim 1. Although Figure 23 shows an alignment defect 57 created by pillar spacer 33 is formed across blue pixel 32B, the alignment defect is not created “across adjoining ones of the pixel regions,” as recited in Claim 1 (i.e., the defect region 57 of Figure 23 is only a single region formed across a single pixel, and not a plurality of regions formed across multiple adjoining

pixels). Further, a portion of light shielding layer 36 (shown to the right of pixel 32R) cannot be considered as part of pixel 32R and part of the pixel to the right thereof because the pixel regions of Claim 1 are defined as being within cells that “lack light shielding material.” Thus, light-shielding layer 36 cannot be considered as part of either adjacent pixel region because the pixel regions lack light shielding material, as defined in Claim 1.

Thus, for the reasons discussed above, the Miyazaki et al. reference fails to disclose all of the features of independent Claim 1. Accordingly, Applicant respectfully requests the withdrawal of this §102 rejection of independent Claim 1 and associated dependent Claims 2-8.

With regard to independent Claim 9, Applicant respectfully submits that the Miyazaki et al. reference lacks “a pillar spacer which is formed on the light shielding film and provided such that it protrudes from the light shielding film into adjoining ones of the pixel regions.” One example of an embodiment that includes this feature is shown in Applicant’s Figures 5 and 6, which show pillar spacer 18 that protrudes into four adjacent pixel regions (i.e., it “protrudes into adjoining ones of the pixel regions,” as defined in independent Claim 9). In independent Claim 9, the “pixel regions” are defined in the same manner as in independent Claim 1 (i.e., as being within cells that lack light shielding material). It should be noted that although the embodiment of Applicant’s Figures 5 and 6 includes a pillar spacer that protrudes into *four* neighboring pixel regions, Claim 9 merely

states that the pillar spacer protrudes into “adjoining ones of the pixel regions.” Accordingly, Claim 9 is satisfied if the pillar spacer protrudes into two or more adjoining pixel regions.

In contrast, none of the embodiments of the Miyazaki et al. reference include a pillar spacer that “protrudes into adjoining ones of the pixel regions,” as defined in independent Claim 9. For example, in Figure 20 of the Miyazaki et al. reference, pillar spacer 33 does not protrude into any of the pixel regions (as the “pixel regions” are defined in amended Claim 9, as being within cells that lack light shielding material). Instead, in Miyazaki et al., the pillar spacer 33 is formed in a TFT shielding area 36, and not in a “pixel region.” Nor is this feature shown in the Figure 23 embodiment of the Miyazaki et al. reference, in which the pillar spacer 33 once again does not protrude into any of the “pixel regions,” but is instead formed on light shielding layer 36.

Thus, for the reasons discussed above, the Miyazaki et al. reference fails to disclose all of the features of independent Claim 9. Accordingly, Applicant respectfully requests the withdrawal of this §102 rejection of independent Claim 9.

For all of the above reasons, Applicant requests reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference

would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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